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10/500,758	07/06/2004	Reinhold Haeb-Umbach	NL 020001	7174

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Philips Electronics North America Corporation
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EXAMINER

CHAU, COREY P

ART UNIT	PAPER NUMBER
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2615

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/500,758	HAEB-UMBACH ET AL.	
	Examiner	Art Unit	
	Corey P. Chau	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 1, recites "the estimate for the distortion **is a function** of A times the spectral power of the at least one reference signal", while claim 2, recites "the estimate for the distortion **is at least partly proportional to** A times the spectral power of the at least one reference signal", which does not further limit the subject matter of claim 1.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting

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directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-2 and 5-10 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication No. 20020039425 to Burnett et al. (hereafter as Burnett).

4. Regarding Claim 1, Burnett discloses an audio enhancement system, comprising:

audio signal inputs for a distorted desired signal and at least a reference signal (Figs. 2-5; page 1; paragraph 0013-0014); and

a spectral processor coupled to the audio signal inputs for processing the distorted desired signal in order to provide just the desired signal, said spectral processor using the at least one reference signal as an estimate for the distortion of the desired signal (Figs. 2-5; page 1; paragraph 0013-0014; pages 2-3, paragraph 0029-0037),

characterized in that the spectral processor processes said distorted desired signal in such a way that the estimate for the distortion is a function of A times the spectral power of the at least one reference signal, where A is a ratio between the time averaged spectral power of the distortion of the desired signal and the time averaged spectral power of the at least one reference signal (Figs. 2-5; page 1; paragraph 0013-0014; pages 2-3, paragraph 0029-0037).

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5. Regarding Claim 2, Burnett discloses the estimate for the distortion is at least partly proportional to A times the spectral power of the at least one reference signal (Figs. 2-5; page 1; paragraph 0013-0014; pages 2-3, paragraph 0028-0037).

6. Regarding Claim 5, Burnett discloses the ratio A is calculated based on data acquired during absence of the desired signal (Figs. 2-5; page 1; paragraph 0013-0014; pages 2-3, paragraph 0028-0037).

7. Regarding Claim 6, Burnett discloses a speech activity detector coupled to the spectral processor (Figs. 2-5; page 1; paragraph 0013-0014; pages 2-3, paragraph 0028-0037).

8. Regarding Claim 7, Burnett discloses adaptive microphone filter means coupled to the spectral processor (Figs. 2-5; page 1; paragraph 0013-0014; pages 2-3, paragraph 0028-0037; page 4, paragraph 0054).

9. Regarding Claim 8, Burnett discloses one or more loudspeakers and echo cancelling filter means coupled between the one or more loudspeakers and the spectral processor (PP) (Figs. 2-5; page 1; paragraph 0013-0014; pages 2-3, paragraph 0028-0039).

10. Claim 9 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.

11. Claim 10 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.

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12. Claims 1-2, 4, and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by USPAPN 20020064287 to Kawamura et al. (hereafter as Kawamura).

13. Regarding Claim 1, Kawamura discloses an audio enhancement system, comprising:

audio signal inputs for a distorted desired signal and at least a reference signal (Figs. 1, 3-5, and 16-18); and

a spectral processor coupled to the audio signal inputs for processing the distorted desired signal in order to provide just the desired signal, said spectral processor using the at least one reference signal as an estimate for the distortion of the desired signal (Figs. 1, 3-5, and 16-18; page 4, paragraph 0060; page 8, paragraphs 0092-0093 and 0097),

characterized in that the spectral processor processes said distorted desired signal in such a way that the estimate for the distortion is a function of A times the spectral power of the at least one reference signal, where A is a ratio between the time averaged spectral power of the distortion of the desired signal and the time averaged spectral power of the at least one reference signal (Figs. 1, 3-5, and 16-18; page 4, paragraph 0060; page 8, paragraphs 0092-0093 and 0097).

14. Regarding Claim 2, Kawamura discloses the estimate for the distortion is at least partly proportional to A times the spectral power of the at least one reference signal (Figs. 1, 3-5, and 16-18; page 4, paragraph 0060; page 8, paragraphs 0092-0093 and 0097).

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Regarding Claim 4, Kawamura discloses the respective spectral powers are defined by a positive function of the spectral power concerned, said positive function being one of the spectral magnitude, the squared spectral magnitude, the power spectral density or the Mel-scale smoothed spectral density (Figs. 1, 3-5, and 16-18; page 4, paragraph 0060; page 8, paragraphs 0092-0093 and 0097).

15. Claim 9 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.

16. Claim 10 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.

17. Claims 1-2, 4-6, and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6952482 to Balan et al. (hereafter as Balan).

18. Regarding Claim 1, Balan discloses an audio enhancement system, comprising:
audio signal inputs for a distorted desired signal and at least a reference signal (Fig. 1); and

a spectral processor coupled to the audio signal inputs for processing the distorted desired signal in order to provide just the desired signal, said spectral processor using the at least one reference signal as an estimate for the distortion of the desired signal (Figs 1-2; column 5, lines 3-31),

characterized in that the spectral processor processes said distorted desired signal in such a way that the estimate for the distortion is a function of A times the spectral power of the at least one reference signal, where A is a ratio between the time

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averaged spectral power of the distortion of the desired signal and the time averaged spectral power of the at least one reference signal (Figs 1-2; column 5, line 3 to column 6, line 30; column 9, line 55 to column 10, line 31).

19. Regarding Claim 2, Balan discloses the estimate for the distortion is at least partly proportional to A times the spectral power of the at least one reference signal (Figs 1-2; column 5, line 3 to column 6, line 30; column 9, line 55 to column 10, line 31).

20. Regarding Claim 4, Balan discloses the respective spectral powers are defined by a positive function of the spectral power concerned, said positive function being one of the spectral magnitude, the squared spectral magnitude, the power spectral density or the Mel-scale smoothed spectral density (Figs 1-2; column 5, line 3 to column 6, line 30; column 9, line 55 to column 10, line 31).

21. Regarding Claim 5, Balan discloses the ratio A is calculated based on data acquired during absence of the desired signal (Fig 1; column 9, line 55 to column 10, line 31).

22. Regarding Claim 6, Balan discloses a speech activity detector coupled to the spectral processor (Fig 1; column 9, line 55 to column 10, line 31).

23. Claim 9 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.

24. Claim 10 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.

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25. Claims 1-3, 5, and 9-10 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 7174291 to McArthur et al. (hereafter as McAurthur).

26. Regarding Claim 1, McArthur discloses an audio enhancement system, comprising:

audio signal inputs for a distorted desired signal and at least a reference signal (Figs. 1-2); and

a spectral processor coupled to the audio signal inputs for processing the distorted desired signal in order to provide just the desired signal, said spectral processor using the at least one reference signal as an estimate for the distortion of the desired signal (Figs 1-2; column 2, line 59 to column 3, line 10; column 7, line 26 to column 8, line 53),

characterized in that the spectral processor processes said distorted desired signal in such a way that the estimate for the distortion is a function of A times the spectral power of the at least one reference signal, where A is a ratio between the time averaged spectral power of the distortion of the desired signal and the time averaged spectral power of the at least one reference signal (Figs 1-2; column 2, line 59 to column 3, line 10; column 7, line 26 to column 8, line 53).

27. Regarding Claim 2, McArthur discloses the estimate for the distortion is at least partly proportional to A times the spectral power of the at least one reference signal (Figs 1-2; column 2, line 59 to column 3, line 10; column 7, line 26 to column 8, line 53).

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28. Regarding Claim 3, McArthur discloses the estimate for the distortion at least partly depends on the signal to noise ratio of the distorted desired signal (Figs 1-2; column 2, line 59 to column 3, line 10; column 7, line 26 to column 8, line 53).

29. Regarding Claim 5, McArthur discloses the ratio A is calculated based on data acquired during absence of the desired signal (Figs 1-2; column 7, line 26 to column 8, line 53).

30. Claim 9 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.

31. Claim 10 is essentially similar to Claim 1 and is rejected for the reasons stated above apropos to Claim 1.

Response to Arguments

32. Applicant's arguments filed 1/03/2007 have been fully considered but they are not persuasive.

33. With respect to Applicant's argument on page 10, stating that "It is unclear to Applicants what the Examiner believes the reference signal is in Burnett et al. However, the only apparent reference signal in Burnett et al. is the VAD signal. In that case, there is no way in which this signal can be used as an estimate of the distortion in the desired (speech) signal in that the VAD signal is a binary signal which is "zero" in the absence of a speech signal and "one" in the presence of a speech signal", has been noted. However, the examiner respectfully disagrees. Claim 1, recites "at least a reference signal", but does not clearly define "at least a reference signal" in the claim, which the

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examiner can broadly interpret that term in any manner consistent with the term, such as the signal(s) originating from the one or more microphones, as shown in Figs. 1-4, which reads on "at least a reference signal". Furthermore, in the instant application, on page 5 of the specification discloses "The signals z and y may originate from one or more microphones 2, as shown in FIGS. 2a, 2b, 3 and 4", therefore the signal originating from the one ore more microphones of Burnett reads on the reference signal y.

34. Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

35. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

March 19, 2007
CPC


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